Des singularités de la nature: Par Mr. de Voltaire

Chapters 1-8 out of 38

English Translation

Here we propose to examine several objects of our curiosity with the mistrust that one should have of any system until it has been proven to the eyes or to reason. We must banish as much as possible all pleasantries in this research. Mockery does not make convictions, and insults even less so. A doctor better known for his impetuous imagination than for his practice, writing against the famous Linnaeus, who classifies the hippopotamus, the pig, and the horse in the same class, said to him, “Horse yourself!” I interrupted him when he was reading this sentence and said to him, “You will admit that if Mr. Linnaeus is a horse, he is the first of horses.” It is not wise to begin with such epithets & it is not honest to conclude with them

The examination of nature is not a satire Let us only beware of appearances that so often deceive, of the magisterial authority that seeks to subjugate, of the charlatanism that so often accompanies and corrupts the sciences, and of the credulous crowd that for a time echoes the words of a single man.

Let us remember that the whirlwinds of Def's cards have vanished, that nothing remains of his three elements, almost nothing of his description of man, that two of his laws of motion are false, that his system of light is erroneous, that his innate ideas are rejected, etc. etc. etc.

Let us consider that Burnet's, Woodward's, and Whiston's theories on the formation of the earth have no supporters today, that even in Germany people are beginning to reconsider monads, pre-established harmony, and the theodicy of the ingenious and profound Leibniz, as well as forgotten games of the mind in the rest of Europe. The more truths we have discovered in the New World, the more we must banish the errors that tarnish it. profound Leibniz as intellectual games forgotten in naive fantasy throughout the rest of Europe. The more truths

we have discovered in the century of Newton, the more we must banish the errors that would sully those truths. We have made a large harvest, but we must sift the wheat and reject the chaff.

In physics, as in all matters of this world, let us begin by doubting. Let us examine with our own eyes and with those of others. Let us then be wary of establishing general rules. Anyone who, having seen only bipeds and quadrupeds, teaches that generation occurs only through the union of a male and a female, would be gravely mistaken.

Anyone who, before the invention of grafting, claimed that trees could only bear fruit of their own species would have been mistaken. Nearly a century ago, it was believed that a satellite of Venus had been discovered. Since a famous English observer saw, or believed he saw, this satellite, it was also believed to have been seen in France, although astronomers doubt this. It is likely that it exists, but we need to improve our telescopes to be sure.

The analogy could more reasonably attribute a satellite to Mars, which is much further from the sun than we are. This satellite would be easier to discover, yet it has never been seen. It is therefore best to remain uncertain about anything in the sky or on earth until we have well-established evidence.

Dark night comes before God. God covers, says Horace, his secrets of a deep night.

Will we ever learn by what subtle means The eternal craftsman makes bodies vegetate? Why the hideous hyena, the tiger, the panther Never shed their cruel nature? And why, recognizing the hand that feeds it, The dog dies licking the master it cherishes? Where does it come from that with a hundred feet that seem useless This foul, trembling creature drags its feeble steps? How does this changing worm builds a tomb, buries itself, and rises again with a new body, its forehead crowned with sparkling brilliance, soaring into the air with outstretched wings? Will the wise Dufély, among his diverse plants gathered from

the ends of the universe, tell me why the tender, sensitive plant withers under our hands, shameful and fleeting?

Ask Silva by what mysterious secret This food is digested in my body Transformed into a gently prepared milk How it is always filtered in its certain paths In long purple veins it runs to swell my veins Giving my languishing body new power Making my heart beat & my brain think.

He raises his eyes to heaven, bows his head, and cries out, "Ask the God who gave us life."

This is not what we call lazy reasoning; it is enlightened and wise reasoning that knows that a frail being cannot penetrate the infinite. A fetus suffices to demonstrate our powerlessness. We are able to calculate, weigh, and conduct experiments, but let us always remember that the wise Hippocrates began his aphorisms by saying that experience is deceiving, and that Aristotle began his metaphysics with these words: "He who seeks to learn must know how to doubt." To see what astonishing effects nature is capable of, let us examine some of its productions that are within our reach and and let us doubt what obvious conclusions we might draw from them.

CHAPTER ONE Figured Stones

These stones, sometimes agate, sometimes marble or pebbles, are very common. They are called dendrites when they resemble trees or shrubs, herbaceous or woody, when they resemble only small plants, and morfites when nature has imprinted on them the imperfect resemblance of some animals Those depicting houses could be called domatists. There are some very surprising examples of this type. I saw one on which you could make out a tree laden with fruit and a very poorly drawn but recognizable human face.

It is clear that it was neither a tree nor a house that left its imprint on these small stones at a time when they may have been soft and fluidity. It is obvious that a man did not leave his face on an agate. This alone demonstrates that nature

exercises in the genus of fossils, as in others, a power whose strength we cannot doubt nor whose effects we cannot unravel.

To say that we have seen on these dendrites the imprints of tree leaves that only grow in India is to put forward something that has not been proven. Is such fiction not the flight of the imagination of a few who imagined that the Indian Ocean once reached Germany, Gaul, and Spain? The Huns and the Goths did indeed come there, but the sea does not travel like men. It gravitates eternally toward the center of the globe. It obeys the laws of nature. And even if it had made this journey, how could it have brought leaves from India to deposit them on agates in Bohemia? We begin with this observation because it will serve us more like no other, it challenges us to believe that tiny creatures from the most distant seas came to inhabit the quarries of Montmartre and the peaks of the Alps and Pyrenees. There is no doubt that great revolutions have taken place on this globe, but we like to exaggerate them, treating nature as ancient history in which everything is a miracle.

CHAPTER II Coral

Are we sure that coral produces insects, just as it is undeniable that wax is the work of bees? Small insects have been found in the pores of coral, but where are they not found? The hollows of all trees are teeming with them, old walls are covered with colonies, but these small animals did not form the walls and the trees. We would be much better off assuming, if we saw an old piece of Saf senage cheese for the first time, that the countless mites it contains produced this cheese.

One of those who said that corals were composed of small worms claimed at the same time that lapis was made from the bones of the dead because it had been discovered that imperfect lapis lazuli near an ancient corpse It may well be that corals are no more the work of a worm than lapis lazuli is the work of a dead bone.

Thousands of insects come to live in the sponges on the seashore, but did these insects produce the sponges? Very skilled naturalists believe that coral is a dwelling that insects have built for themselves. Others stick to the old opinion that it is a plant, and the evidence before their eyes supports their view.

CHAPTER III Of the Polyps

Is it well established that the water lenses we call freshwater polyps are real animals? I greatly distrust my eyes and my understanding, but until now I have only ever seen in these polyps a kind of very fine, thin rush that seems to behave like a sensitive plant. The heliotrope, or sunflower, which often turns itself toward the sun, may at first appear to be as extraordinary a phenomenon as that of the polyps. The Indian mimosa, which seems to imitate the movements of animals, is nevertheless not at all the animal species. The very slow and slight progression observed in polyps swimming in a cup of water is not much more noticeable than more visible progression of small flat stones descending from the edges of a dish in the middle when that dish is filled with vinegar. The arms of the polyp may well be nothing more than ramifications, its heads simple stomachs made of hollow fibers, the undulations of these fibers.

The tiny creatures that this plant sometimes seems to swallow can enter its substance to feed and perish there, as well as being attracted by this substance to be eaten by it. The polyp survives very well without these small insects falling into its fibers, so it does not need food, and we can therefore believe that it is only a plant. What we took for its eggs may only be seeds. Its reproduction by cuttings seems to indicate that it is a simple plant. Finally, it sheds leaves when it is turned over like a glove. Certainly, nature did not make it to be turned over by our hands, and there is nothing there that suggests animality.

The late Mr. Dufey had a beautiful collection of large polyps in jars on his mantelpiece. His parents and I looked at each other and told him that we were like Sancho Panza, who saw only windmills where his master saw armed giants. Our incredulity should not, however, strip these polyps of their dignity as animals. Striking experiments speak in their favor. I do not claim to take away

their titles, but do they have the sensitivity and perception that distinguish the animal kingdom from the plant kingdom? Do we recognize as our fellow creatures beings that bear no resemblance to us? Certainly, Monsieur Vaucanson's flute player looks more like a man than a polyp looks like an animal. Perhaps we should only grant the status of animal to beings that perform all the functions of life and manifest feelings, desires, and wills, and ideas.

It is wise to remain skeptical until a sufficient number of repeated experiments have convinced us that these aquatic plants are beings endowed with senses of perception and organs that constitute real animals. Truth can only benefit from waiting.

CHAPTER IV Snails

The reproduction of these polyps, which occurs in the same way as that of poplars and willows, is far less marvelous than the rebirth of the heads of slugs. That a head should return to an animal that is visibly alive and whose species is unmistakable is an unheard-of miracle, but one that cannot be disputed. There is no supposition to be made, no microscope to be used, no errors to be feared. Human reason and especially the reasoning of the school is confounded by the testimony of the eyes. We believe the head in all living beings to be the principle, the cause of all movements, all sensations, all perceptions; here it is quite the opposite. The head that is to be reborn receives from the rest of the body in fifteen or twenty days fibers, nerves, a circulating fluid that takes the place of blood, a mouth, teeth, telescopes, eyes, a brain, sensations, ideas—I say ideas because one cannot feel without having at least a vague idea of what one feels. Where, then, will the principle of the soul be found? Will we be forced to return to the harmony of the Greeks? And will ten thousand volumes of metaphysics become absolutely useless? If at least the reproduction of these heads could force certain men to doubt, snails would have rendered a great service to the human race.

CHAPTER V Oysters with the Shells

Oysters are a great wonder to us, but not to nature. An animal that is always immobile, always solitary, trapped between two walls as hard as it is soft, which gives birth to its own kind through copulation and produces pearls, which seems deprived of sight, hearing, smell, and the ordinary organs of nourishment. What an enigma! We eat them by the hundreds without giving the slightest thought to their singular properties.

For the snails, cut them on their rock, which serves as their head, then close their shell & see what happens to them after a month. Are they zoophytes? What boundaries divide plants and animals? Where does another order of things begin? What chain binds the universe together? But is there a chain? Do we not see a marked disproportion between the planets and their distances, between raw nature and organized nature, between vegetative matter and the sentient, between the sentient and the thinking? Who knows if they touch each other? What if there is an infinity between them that separates them? Who will ever know what matter is?

CHAPTER VI Of Bees

Don't pretend to be the first to say that they had a king. It's unlikely that a republican would have come up with this idea. I don't know who then gave them a queen instead of a king, nor who suggested that this queen was a Messalina who had prodigious sexual appetite, who spent her life making love and giving birth, laying and incubating around forty thousand eggs per year.

We went further and claimed that she laid three different species of queens, slaves called drones, and servants called workers, which is not entirely consistent with the ordinary laws of nature.

It was believed that a physicist, who was also a keen observer, invented chicken ovens a few years ago, which had been invented about five thousand years ago by the Egyptians, not taking into account the extreme difference between our climate and that of Egypt. It was also said that this physicist invented the kingdom of bees under a queen mother of three species.

All naturalists have repeated this invention. Finally, a man came along who, being the owner of six hundred beehives, examined his property more closely than those who, having no bees, copied volumes on this industrious republic, which we know little more about than that of ants. This man is Monsieur Simon, who prides himself on nothing, who writes very simply, but who, like me, collects honey and wax. He has better eyes than I, he knows more than Monsieur le Prieur de Jonval and Monsieur le Comte du Spectacle de la Nature. He has examined his bees for twenty years and assures us that we have been deceived and that there is not a word of truth in all that has been repeated in so many books.

He claims that in fact there is in each species a king and queen who perpetuate this royal race and preside over the work. He has seen them, he has drawn them, and he refers to the Thousand and One Nights and to the story of Queen Achem, the supposed queen bee with her sting. Then there is the race of bumblebees, which has no relation to the first, and finally, the large family of worker bees, which are male and female and form the body of the republic. It is the female bees that lay their eggs in the cells they have formed.

How indeed could the queen alone lay and house forty thousand eggs one after the other? It is very likely that my friend Simon is right. The simplest system is almost always the correct one. Besides, I care very little about the king and queen. I would have preferred that all these reasoners had taught me how to cure my bees, most of which died two years ago from feeding too much on linden flowers.

We have been misled about everything that arouses our curiosity, from elephants to bees and ants, just as we have been fed Arabian tales for history, from Sesostris to the donation of Constantine and from Constantine and the Labarum to the pact that Marshal Fabert made with the devil. Almost everything is obscure in the origins of animals as well as in those of peoples, but whatever opinion we embrace about bees and ants, these two republics will always have something to astonish us and humble our reason. There is no insect that is not an inexplicable marvel.

In the proverbs attributed to Solomon, we find that there are four things that are the smallest on earth and yet wiser than the wise: ants, a tiny people who prepare food during the harvest; hares, a weak people who sleep on rocks; lizards, who have no kings and travel in groups; and lizards, who work with their hands and dwell in the palaces of kings. I do not know why Solomon forgot the bees, who seem to have a much greater instinct than the hares, who do not lie on stones, and the lizards, whose genius I do not know. Moreover, I will always prefer a bee to a grasshopper.

CHAPTER VII Of Stone

Nature plays at forming as many types of stones as there are animals. It produces stones that resemble lentils, which are called lenticular stones, cubes, round pebbles, stones that somewhat resemble tongues, and which have been named gloffopetes/gloffopetres, others that are shaped like eggs, and others that resemble sea urchins. Many are twisted into spirals. They have been given the very inappropriate name of Ammon's horns, because in all sciences there has been a slight tendency to impose grandiose names on the most common things. Thus, chemists have called a preparation of lead the sugar of Saturn, just as a bourgeois who has bought a position takes the title of haut & de puis Sant Seigneur at his notary's office.

I have seen these horns of Ammon, which appear to be newly formed and are no larger than the nail of the little finger. I have seen some that are half-formed and weighing twenty pounds. I have seen some that form a perfect spiral, others that are shaped like a snake coiled around itself, none that look like a horn. It has been said that these stones are the former dwelling place of a fish found only in India, and that therefore the Indian Ocean once covered our countryside. We have already discussed this, and we still wonder whether this explanation of nature is indeed natural.

There are shells called Venus conches because they have an oblong slit gently rounded at both ends. The gallant imagination of some physicists has given them

a beautiful name, but this name does not prove that these shells were the remains of ladies.

CHAPTER VIII Of the Pebble

What rocky substance forms these stones of a thousand different kinds? Why is it that in many of our countryside areas we do not see a single stone, while others a short distance away are covered with them? Why is it that in America, near the Amazon River, we do not find a single one within a distance of five hundred leagues?

In the middle of our fields we discover enormous stones ranging from three to twenty inches in diameter, and next to them are others that appear just as old and are half an inch thick. Others are two or three lines in diameter. Their specific gravity is uneven; in some it is close to that of iron, in others it is less, and in a few it is greater.

However heavy, opaque, or dense a pebble may be, it is perforated like a sieve. If gold and diamonds have as many or more pores than substance, then all the more reason should the pebble be perforated in all its dimensions, and A million openings in a stone can provide as many passages for imperceptible insects. It is an assembly of homogeneous parts, often resulting in a structure that is unshakeable by a hammer. It can be vitrified over time in a furnace, and we then see that its parts form a kind of crystal, but force had joined these small crystals, resulting in a body so hard that fire could not destroy it. Was it attraction that made all the parts so united and compact, the attraction demonstrated between the sun and planets, between the earth and its satellite, between all the parts of the globe that it penetrates to the center of the globe. Is it the first principle of the cohesion of bodies? Is it, along with movement, the first law of nature? That is the most likely explanation, but this proof is still far from convincing.